

List of Types of Renewable Energy

WIND:



WATERFALL:

Hydroelectric by waterwheels \rightarrow turbines \rightarrow generators
 \rightarrow Transformer \rightarrow switching devices \rightarrow Electricity

Solar = Sun = generates energy by burning Hydrogen
by Nuclear Fusion

Solar Collectors of solar Radiation \rightarrow Heat \rightarrow Thermo-
electricity.

Hydrogen

Ocean Tide Energy

Peat Moss + Bogs

Geo-Thermal = Steam from the Earth & Hot springs
Ocean floor hydrothermal vents
Earth surface steam vents

Thermoelectricity = electricity generated by direct action of Heat

Mechanical: Diesel or Kerosene Internal Combustion
Gasoline Engines \rightarrow generators \rightarrow transformers etc

Last
Resort

Synthetic Fuels

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List of Non-Renewable Energy Producers

Fuel \rightarrow energy

Fissionable Nuclear Materials

Uranium

Chemical Reactions =

Endothermic = absorbs heat

Exothermic = Liberates heat

Fossil Fuels

Coal \rightarrow Coal gasification

Oil \rightarrow $\left. \begin{array}{l} \text{gasoline} \\ \text{Kerosene} \\ \text{Diesel Fuels} \end{array} \right\}$ combustible

Gas (natural)

Tar sands

Tar Shales

Electric Energy:

Thermoelectricity

Hydroelectricity

Magnetohydroelectricity

Consider:

Kinetic Energy vs

Magnetohydrodynamics

The Dynamo

Cold Fusion

These
must
be
invested
wisely

Wind Power turns windmills and propels sailboats. Airplanes use the power of a high-altitude wind called the *jet stream*. Wind itself costs nothing and creates no pollution. But wind power is practical only in areas that have strong, steady winds.

Tidal Energy can be used wherever there are high tides in a bay that can be closed by a dam. During high tide, the bay fills with water. During low tide, the level of the ocean drops below the level of water stored behind the dam. The stored water is then released. As the water falls, it drives turbines that generate electricity. The world's first tidal power plant began to operate in 1966 in France. The chief disadvantage of tidal power is that it can produce electricity only at certain times and for short periods. In addition, plants can be built in few places.

Geothermal Power is generated wherever water comes into contact with heated underground rocks and turns into steam. Power companies drill into areas where underground steam is trapped and direct it into the blades of steam turbines. In areas where underground steam does not exist naturally, engineers can create it by injecting water into hot rock. Geothermal power plants do not burn anything, and so no smoke pollutes the air. Some of these plants produce electricity more cheaply than do ordinary power plants. Several countries, including Italy, Japan, and the United States, had developed geothermal power plants by the mid-1970's.

Magnetohydrodynamic (MHD) Generators convert fuel directly into electricity. An MHD generator burns coal or other fuel at high temperatures to produce a hot *ionized* (electrified) gas. The gas shoots through a magnetic field, where it produces an electric current that is drawn off by electrodes. After the gas has passed through the MHD generator, it can drive a turbine to produce more electricity. MHD generators could provide a highly efficient power source, but many tech-